



# AMMTIAC

## *2008 PEO/PM Symposium*

# **Advanced Materials, Manufacturing and Testing Information Analysis Center**

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# AMMTIAC's Core Focuses

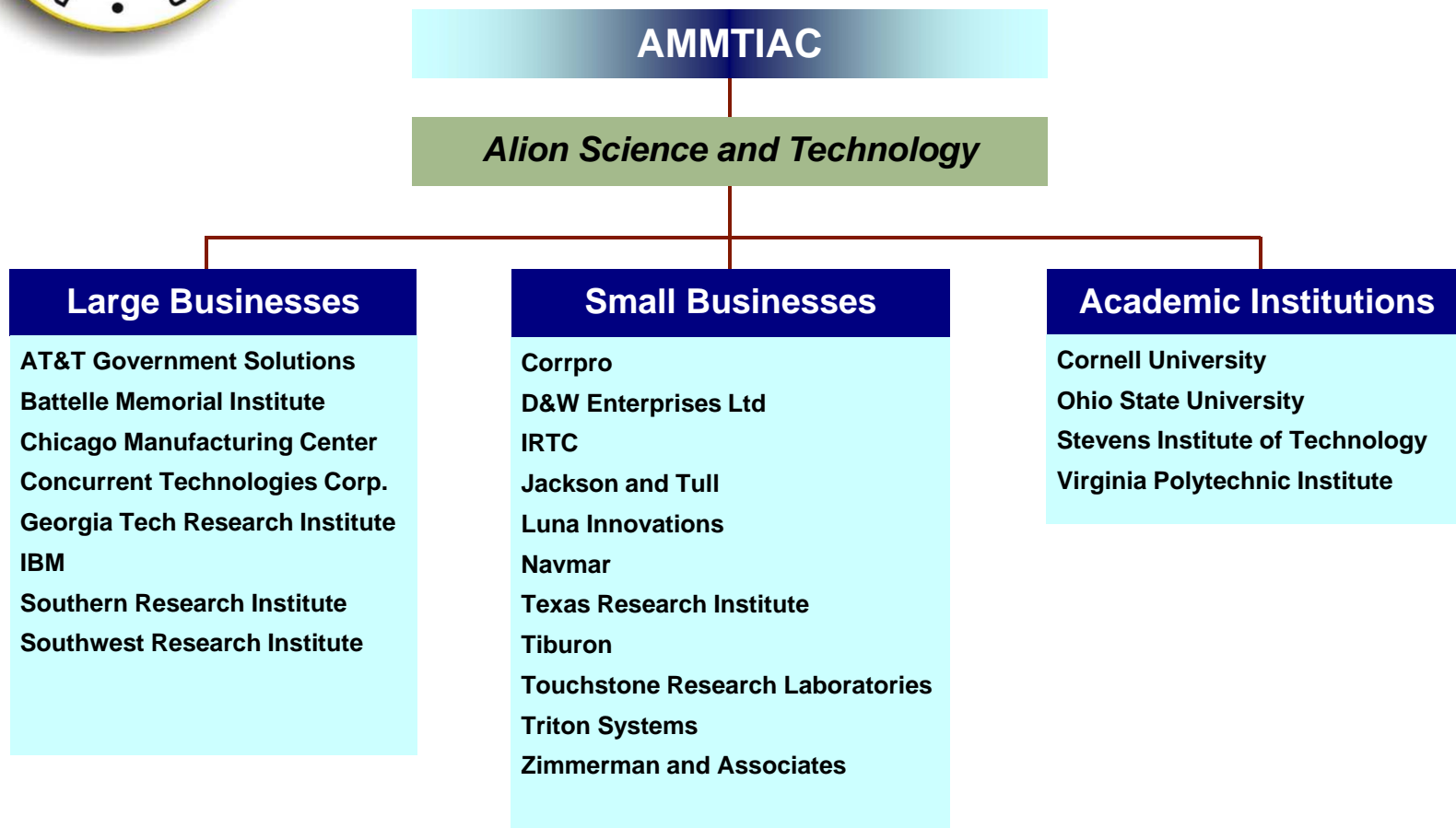
1. Life Cycle Management
  - Design review/optimization
  - Repair Practices
  - Re-engineering
2. Sustainment Technologies
  - Superfinishing, Specialty Coatings
  - NDI/NDE
  - Corrosion Prevention, Control & Mitigation
3. Acquisition Support
  - Corrosion Planning Review
  - Review for manufacturability
  - Review for sustainability
  - Manufacturing Readiness Review
4. System Engineering
  - Analysis of Alternatives
  - Requirements Allocation Review
5. Manufacturing Technologies
  - Design, Prototype & Process Optimization
6. Testing
  - Design & Execution
  - First Article Testing
  - Materials Through System Levels
7. Materials Engineering
  - Materials Selection, Failure Analysis & Technology Insertion
  - Blast Mitigation

***AMMTIAC is the full life cycle solutions provider***

*Information for the Defense Community* 



# THE AMMTIAC TEAM



**AMMTIAC's technically diverse and multi-faceted team spans all stages of the system life cycle, providing true "cradle to grave" support to the Warfighter.**

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# AMMTIAC

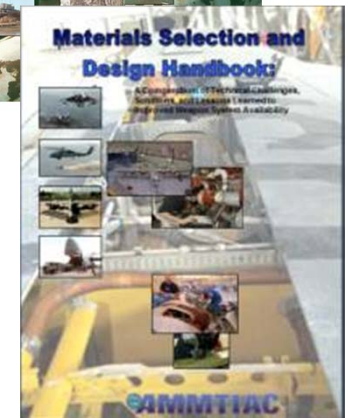
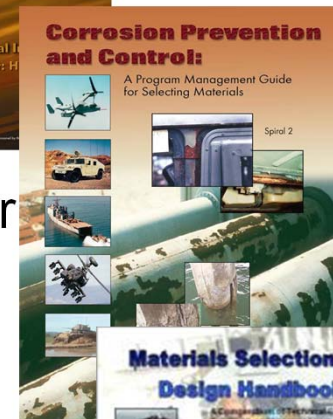
## INFORMATION SERVICES





# Supporting the Acquisition Community Through Focused Technical Information

- ***The AMMTIAC Quarterly*** - Our technical journal highlighting the latest in DoD acquisition and sustainment activities
  - E.g. F-35 production updates, detecting insulation defects in complex wiring systems, NDT/NDI
- ***Program Manager's Handbook for Corrosion Prevention & Control*** – First of its kind reference on major causes of corrosion, their impact to military systems, and preventative design and maintenance strategies.
  - For use by PMs, product centers, and maintenance orgs.
- ***Readiness Handbook*** – Material selection and design handbook that examines the root technical causes of readiness and availability shortfalls of military assets.
  - Written for program office engineering staffs, field & depot-level maintenance personnel





# Supporting the Acquisition Community Through Ready Access to Quality Scientific, Technical, and Operational Support Information

## The AMMTIAC Website

<http://ammtiac.alionscience.com>

- Information Resource
  - 300,000 Reports In AMMTIAC Library
  - Online Newsletter Articles
  - Portal to 30,000 Electronic Reports in TEMS
- Industry Locator (MatPro)
- AMMTIAC Products & Services
  - Handbooks & Databooks
  - Inquiry Service



# Supporting the Warfighter

## Through AMMTIAC's Technical Inquiry Service

*Get rapid, reliable answers to your technical questions from AMMTIAC!*



*Contact us directly!*



- Phone: (315) 339-7090
- Fax : (315) 339-7107
- E-mail: [ammtiac@alionscience.com](mailto:ammtiac@alionscience.com)

- Modular Armor for Overhead Protection
- Modular Armor for Tent Structures
- B-2 Brakepad
- Galling of the Astern Throttle Valve on the USS John F Kennedy (CV-67)





# AMMTIAC

## PROVIDING SOLUTIONS RELEVANT TO ACQUISITION

**Examples of contract work**



# PM Soldier Weapons Fielded System Study

- M4 Carbine Independent Assessment & Review
  - Design
  - Testing Approach
  - Quality, Manufacturing & Maintenance Data
  - Root Cause Analysis
- Recommend Corrective Actions
  - Technology Developments / Insertions
  - Design Improvements
  - Manufacturing Technology
  - Product Improvements
  - Changes Test Design and Execution
  - Improvements to Manuals
  - Lessons Learned to included Root Causes
  - Effects of Different Environments





# Battery Research Network (BATTNET)

- AMMTIAC supports the Battery Research Network (BATTNET)
  - Defense/Industry consortium sponsored by DLA
  - Promote robust & reliable US-based battery manufacturing capability
- Promote better battery technology
  - More field-portable
  - Reduced size and weight
  - Greater endurance and service life
  - Quicker, more recharges
  - Lower costs
  - Improved performance in harsh environments



*The battery power needs of today's soldier are great*





# Shock & Vibration Engineering Design & Testing

- Review & Evaluate Documents, for Compliance With Shock & Vibration Requirements
- Perform High-Impact Medium Weight Shock Testing for Naval Surface Warfare Center
  - DDG 1000 Integrated Deckhouse & Hangar Design
  - AN/SQQ-89A(V)15/(V)15 UNIT 804 Equipment Rack
  - NATO SEASPARROW MK 29 MOD 4 Guided Missile Launcher
  - Solid State Transmitter
  - Standard Missile
- Prepare Shock Deficiency Correction Plans
- Update MIL-STD-167-1A
- Predict Response of Systems to Shipboard Vibration Inputs
  - Conduct Frequency Response Vibration Analyses







# AMMTIAC

## AMMTIAC Success Stories



# Venom Penetrator

- Navy Surf-Zone De-Mining Program that Uses a Chemical to Neutralize the Explosives
  - Doesn't Leave Unexploded Ordinance
- Performed Life Assessment for Corrosion of Dart Body
  - Reduced Program Risk
  - Determined Dart Body Could Survive a 12 Year Storage Life
  - Recommended a Testing Approach
  - Recommended Dart Fill Procedures
- Re-design Penetrator Nose
  - Live Fire Tests Showed Best Performance (Highest Kill Ratio)
  - 2004 Admiral H. R. Stark Award for the Advancement of Ballistics, Penetrators & Projectiles.



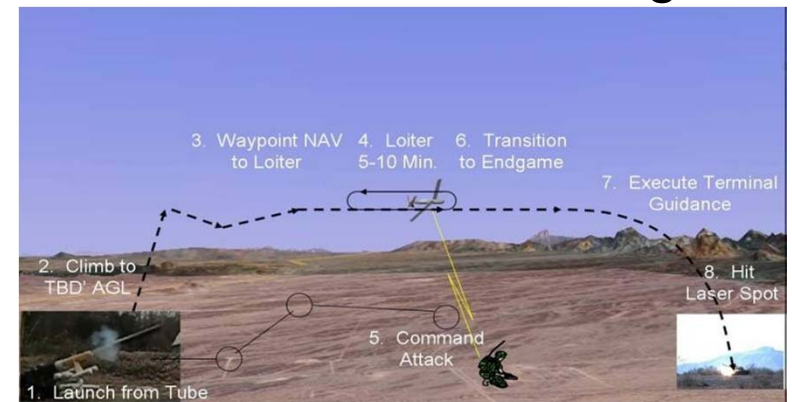
- Re-designed Nose Post Test Showing Penetrator Separation



# Hellshot

## Mortar Launched UAS Concept

- Army has need for a mortar-launched Unmanned Aerial System (UAS) capability with onboard laser seeker.
- AMMTIAC is demonstrating feasibility by constructing prototype and test launching from a mortar tube.
- AMMTIAC SMEs perform research, development and testing of prototype.
- Approach builds upon successful Navy SLADS UAS vehicle design.
  - Sonochute Launched Air Deployable Sensor (SLADS)
  - Reduces development costs
  - Assessing required design modifications, hardware adaptations, and changes in manufacturing practices
- Gives Army a new precision-guided munitions capability.

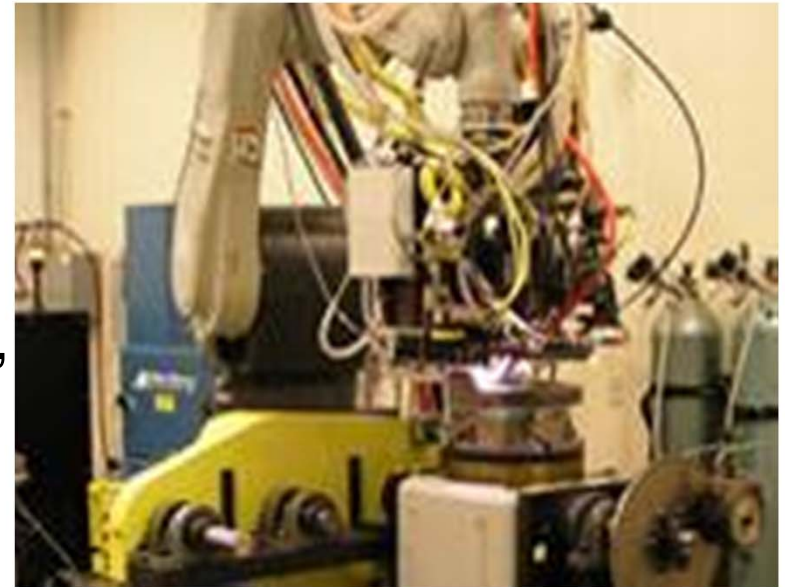




# AMMTIAC

## Low Volume Productivity

- High-power laser “cladding” to extend the useful life of metal parts
- Currently in use by US Navy for ship part refurbishment
- Economic alternative to replacing large, low-production-volume parts
  - Propeller shafts
  - Other large ship components
- Refurbishing worn parts using a custom robotic laser cell
- Robotic system improves productivity, reduces turn-around time
- Winner of two R&D Magazine “Top 100 Awards” for New Development







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